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10/674,748

09/30/2003

Peter Laaser

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12/08/2006

JENKINS, WILSON, TAYLOR & HUNT, P. A.

3100 TOWER BLVD

SUITE 1200

DURHAM, NC 27707

EXAMINER

TRAN, KHAI

ART UNIT

PAPER NUMBER

2611

DATE MAILED: 12/08/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/674,748

Applicant(s)

LAASER, PETER

Examiner

KHAI TRAN

Art Unit

2611

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 30 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 36-43 and 45 is/are allowed.
- 6) ☒ Claim(s) 1,10-14,23,25,31 and 44 is/are rejected.
- 7) ☒ Claim(s) 2-9,15-22,24,26-30 and 32-35 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 31, 44 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claims have not been further treated on the merits.

#### ***Claim Rejections - 35 USC § 112***

2. Claims 18, 19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 18, lines 5-6, the term "the number of data samples" lacks antecedent basis.

Regarding claim 19, line 5, the term "the detected data sample peak" lacks antecedent basis.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

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4. Claims 1, 10-14, 23, 25 are rejected under 35 U.S.C. 102(e) as being anticipated by Peeters (U.S. Pat. 6,931,079)

Regarding claim 1, Peeters discloses a method for reducing a crest factor of a multi-tone-data signal which is transmitted in a predetermined transmission frequency band (the reference illustrates that in col. 2, lines 3-14, a method of processing a band-limited, over-sampled signal comprising: reducing the amplitude of those portions of the signal having peaks above a threshold value; and controlling the frequency position of the noise associated with the reduction of such peaks. Thereby the crest factor of the signal is reduced. The amplitude of those portions of the signal having peaks above a threshold value are not limited to the threshold value. Whilst they may be reduced to a value at or below the threshold value, they may be reduced to a level which is above the threshold value), wherein a multi-tone-correction signal is subtracted from the multi-tone-data signal, the multi-tone correction signal comprising a plurality of tone signals having frequencies outside the transmission frequency band (col. 2, lines 43-51 shows that The step of controlling the frequency position of the noise may comprise moving the noise outside the frequency band used by a signal transmitted in the opposite direction. The signal may contribute an echo to the signal transmitted in the opposite direction. Although this may result in the clipping noise being present in the used band of the transmitted signal, there may be circumstances where it is more desirable to ensure that no clipping noise contributes to the echo). Furthermore, in Figure 1, an output of the subtractor 3 generates an output signal with reduced crest factor 22.

Regarding claim 10, Peeters discloses wherein the multi-tone-data signal comprises a plurality of tone-signals having frequencies which are equidistant (see Figure 2).

Regarding claim 11, Peeters discloses wherein the multi-tone-data signal is a DMT (Discrete-Multi-tone Transmission) signal (see col. 3, lines 36-49).

Regarding claim 12, Peeters discloses wherein the multi-tone-data signal is an ADSL signal (see col. 3, lines 36-49).

Claim 13 is similar to claim 1. Therefore, claim 13 is rejected under a similar rationale.

Regarding claim 14, Peeters discloses wherein the crest factor reduction circuit has a data input for receiving a data symbol sequence of a data transmission signal (see Figure 2-4).

Regarding claim 23, Peeters discloses wherein a delay unit (10) is provided for delaying the received data samples with a predetermined delay time.

Regarding claim 25, Peeters discloses wherein the crest factor reduction circuit comprises a data output for outputting the corrected data samples as a sequence of corrected data symbols each comprising a predetermined number of corrected data samples (see Figure 1, element 22).

***Allowable Subject Matter***

5. Claims 36-43, 45 are allowed.

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6. Claims 2, 3-9, 15-22, 24, 26-30, 32-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: Peeters fails to disclose a method and a crest factor reduction circuit for reducing a crest factor of a multi-tone-data signal which is transmitted in a predetermined transmission frequency band comprising: (a) storing in a first memory at least one data symbol of a data symbol sequence, each data symbol comprising a predetermined number of data samples  $s(i)$  with index  $i$ ,  $0 \leq i \leq (N-1)$ , (b) comparing the amplitude of each data sample of said data symbol with a first threshold value to detect a data sample peak; (c) performing the following steps when a data sample peak is detected; (i) reading a multi-tone-correction signal comprising a corresponding number of correction data samples from a second memory; (ii) shifting cyclically the read correction data samples of the multi-tone correction signal so that the maximum of said correction data samples coincides with the detected data sample peak; (iii) scaling of the shifted correction data samples of the multi-tone-correction signal according to a predetermined spectrum mask; (iv) accumulating the scaled correction data samples of the multi-tone-correction signal in a third memory; (d) subtracting the accumulated correction data samples of the multi-tone-correction signal from the data samples of said data symbol; (b) a IFFT unit for performing an inverse fast fourier transformation to generate a multi-tone-data signal comprising a sequence of data symbols, each having a predetermined number (N) of data samples  $s(i)$  with index  $i$ ,  $0 \leq i \leq (N-1)$ ; (c) a crest

factor reduction circuit for reducing a crest factor of the multi-tone-data signal which is transmitted in a predetermined transmission frequency band, wherein the crest factor reduction circuit comprises means for subtracting a multi-tone-correction signal from said multi-tone-data signal, wherein the multi-tone-correction signal comprises a plurality of tone signals having frequencies outside said transmission frequency band; and (d) a transmission signal path for forming an analog transmission signal from the corrected multi-tone-data signal.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAIR TRAN whose telephone number is (571) 272-3019. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JAY PATEL can be reached on (571) 272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

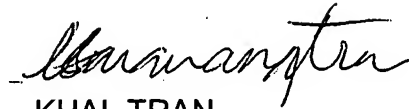
Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Khai Tran', written in a cursive style.

KHAI TRAN  
Primary Examiner  
Art Unit 2611

*KT*  
*December 07, 2006*